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Attorney Docket No. IMMR-020/03US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application Louis B. ROSENBERG et al.

Serial No.: 09/934,739

Examiner: Paul A. Bell

Filed: August 22, 2001

Art Unit: 2675

Confirmation No.: 9387

For: **INTERACTIONS BETWEEN SIMULATED OBJECTS WITH FORCE
FEEDBACK**

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Enclosed is an Information Disclosure Statement and accompanying Form PTO/SB/08A for the above-identified patent application.

- ☐ In accordance with 37 C.F.R. §1.97(b), no additional fee for submission of the IDS is required.
- ☒ In accordance with 37 C.F.R. §1.97(c), also enclosed is:
 - ☒ the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p); or
 - ☐ a statement as specified in 37 C.F.R. §1.97(e).
- ☐ In accordance with 37 C.F.R. §1.97(d), a statement as specified in 37 C.F.R. §1.97(e) and the fee of \$180.00 as set forth in 37 C.F.R. §1.17(p) are also enclosed.
- ☐ Check No. ___ in the amount of \$___ for the total fee is attached.
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The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 50-1283.

Dated: July 12, 2004

Cooley Godward LLP
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11951 Freedom Drive
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Respectfully submitted,
COOLEY GODWARD LLP



By: _____

Erik B. Milch
Reg. No. 42,887



Attorney Docket No. IMMR-020/03US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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**INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §1.97(c)**

In accordance with the duty of disclosure set forth in 37 C.F.R. §1.56,
Applicant(s) hereby submits the following information in conformance with 37 C.F.R.
§§1.97 and 1.98.

- ☒ Pursuant to 37 C.F.R. §1.98, a copy of each document cited in the attached Form PTO/SB/08A (1 of 2) is provided on the enclosed CD.
- ☒ No copies of the publications listed on the attached Form PTO/SB/08A (2 of 2) are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial Nos. 09/433,657, filed November 3, 1999 (now U.S. Patent No. 6,366,272), 08/664,086 (now U.S. Patent No. 6,028,593), 08/566,282 (now U.S. Patent No. 5,734,373), and/or 08/571,606 (now U.S. Patent No. 6,219,032), to which the above-identified application claims priority under 35 U.S.C. §120.
- ☐ No copies of any U.S. patents or U.S. patent application publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98 because this application was filed after June 30, 2003.
- ☐ Publication(s) ___ listed on the attached Form PTO/SB/08A were cited in a foreign search or examination report corresponding to ___ application serial no. ___ and mailed on ___.
- ☐ Enclosed is a copy of a non-English publication(s) ___. Pursuant to §609 of the M.P.E.P., Applicant submits the attached foreign search or examination report, which cites such non-English language publication(s).

- ☐ Enclosed is a copy of a non-English publication(s) _____. English language publication ____ (copy enclosed) claims priority from this non-English publication.
- ☐ Enclosed is an explanation of non-English publication(s) _____ for which an English translation is not available.
- ☐ Enclosed is an English translation of non-English publication(s) _____ cited in the attached Form PTO/SB/08A.
- ☐ Enclosed is a copy of pending patent Application Serial No. _____.

This Information Disclosure Statement is filed after the period specified in 37 C.F.R. § 1.97(b), but before the mailing of:

- ☒ a final action under 37 C.F.R. §1.113;
- ☐ a notice of allowance under 37 C.F.R. §1.311; or
- ☐ an action that otherwise closes prosecution in this application.

In accordance with 37 C.F.R. §1.97(c) also enclosed is:

- ☒ Fee under 37 C.F.R. §1.17(p) in the amount of \$180.00; or
- ☐ Statement as specified in 37 C.F.R. §1.97(e):
 - ☐ Each item of information contained in the Information Disclosure Statement cited herein was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing date of the Information Disclosure Statement; or
 - ☐ No item of information contained in the Information Disclosure Statement submitted herewith was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, having made a reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing date of the Information Disclosure Statement.

It is respectfully requested that the Examiner consider the above-noted information and return an initialed copy of the attached Form PTO/SB/08A to the undersigned.

Dated: July 12, 2004

Cooley Godward LLP
One Freedom Square
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Respectfully submitted,
COOLEY GODWARD LLP

By:



Erik B. Milch
Reg. No. 42,887

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **1** of **3****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

RECEIVED**JUL 15 2004****Technology Center 2600****U.S. PATENT DOCUMENTS**

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6,422,941	7/23/2002	Thorner et al.	
		6,160,489	12/12/2000	Perry et al.	
		6,111,577	8/29/2000	Zilles et al.	
		5,690,582	11/25/1997	Ulrich et al.	
		5,575,761	11/19/1996	Hajianpour	
		5,437,607	8/1/1995	Taylor	
		5,436,622	7/25/1995	Gutman et al.	
		5,283,970	2/8/1994	Aigner	
		5,186,695	2/16/1993	Mangseth et al.	
		5,175,459	12/29/1992	Danial et al.	
		5,165,897	11/24/1992	Johnson	
		5,022,384	6/11/1991	Freels	
		4,885,565	12/5/1989	Embach	
		4,484,191	11/20/1984	Vavra	
		4,464,117	8/7/1984	Foerst	
		4,333,070	6/1/1982	Barnes	
		4,262,549	4/21/1981	Schwellenbach	
		4,127,752	11/28/1978	Lowthorp	
		2,972,140	2/14/1961	Hirsch	

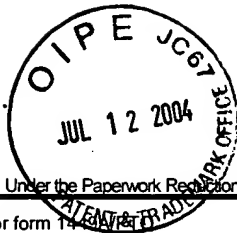
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	H2-185278		7/19/1990	Taito Corporation	
		JP	H4-8381		1/13/1992	Epoch Co. and Key- Planning Co.	
		JP	H7-24147		1/27/1995	Sega Corporation	
		JP	H5-192449		8/3/1993	Taito Corporation	

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¹ Applicant's unique citation designation number (optional). ² Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet **2** of **3**

Complete if Known

Application Number	09/934,739
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Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		PATRICK, "Design, Construction, and Testing of a Fingertip Tactile Display for Interaction with Virtual and Remote Environments," <i>Master of Science Thesis</i> , MIT, Aug. 1990, archived Nov. 8, 1990.
		CALDER, "Design of A Force-Feedback Touch-Introducing Actuator For Teleoperator Robot Control," <i>Bachelor of Science Thesis</i> , MIT, May 1983, archived June 23, 1983.
		WIKER, "Teletouch Display Development: Phase 1 Report," <i>Technical Report 1230</i> , Naval Ocean Systems Center, San Diego, July 1988.
		BLISS, "Optical-to-Tactile Image Conversion for the Blind," <i>IEEE Transactions on Man-Machine Systems</i> , Vol. MMS-11, No. 1, March 1970.
		JOHNSON, "Shape-Memory Alloy Tactile Feedback Actuator," <i>Armstrong Aerospace Medical Research Laboratory</i> , AAMRL-TR-90-039, August, 1990.
		KONTARINIS et al., "Tactile Display of Vibratory Information in Teleoperation and Virtual Environments," <i>PRESENCE</i> , 4(4):387-402, Harvard Univ., 1995.
		AUKSTAKALNIS et al., "Silicon Mirage: The Art and Science of Virtual Reality," ISBN 0-938151-82-7, pp. 129-180, 1992.
		EBERHARDT et al., "Inducing Dynamic Haptic Perception by The Hand: System Description and Some Results," <i>DSC-Vol. 55-1, Dynamic Systems and Control: Volume 1</i> , ASME 1994.
		GOBEL et al., "Tactile Feedback Applied to Computer Mice," <i>International Journal of Human-Computer Interaction</i> , Vol. 7, No. 1, pp. 1-24, 1995.
		PIMENTEL et al., "Virtual Reality: through the new looking glass," 2 nd Edition; McGraw-Hill, ISBN 0-07-050167-X, pp. 41-202, 1994.
		"Cyberman Technical Specification," <i>Logitech Cyberman SWIFT Supplement to Logitech Mouse Technical Reference and Programming Guide</i> , 4/5/1994.
		OUHYOUNG et al., "The Development of A Low-Cost Force Feedback Joystick and Its Use in the Virtual Reality Environment," <i>Proceedings of the Third Pacific Conference on Computer Graphics and Applications, Pacific Graphics '95</i> , Seoul, Korea, 21-24 August 1995.
		KACZMAREK et al., "Tactile Displays," <i>Virtual Environment Technologies</i> , Chap. 9, pp. 349-414.
		LAKE, "Cyberman from Logitech," at http://www.ibiblio.org/GameBytes/issue21/greviews/cyberman.html , 1994.
		"Component Maintenance Manual With Illustrated Parts List, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 28 January 2002 (3 pages).

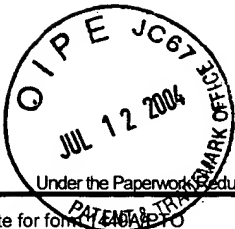
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Sheet 3 of 3

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Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		"Technical Manual Overhaul Instructions With Parts Breakdown, Coaxial Control Shaker Part no. C-25502," Safe Flight Instrument Corporation, Revised 15 July 1980 (23 pages).
		SCANNELL, "Taking a Joystick Ride," <i>Computer Currents</i> , Boston Edition, Vol. 9, No. 11, November 1994
		YAMAKITA et al., "Tele-Virtual Reality of Dynamic Mechanical Model," <i>Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems</i> , Raleigh, NC, July 7-10, 1992
		NOLL, "Man-Machine Tactile," <i>SID Journal</i> , July/August 1972 Issue.
		ROSENBERG, "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance In Telepresence Tasks," <i>Ph.D. Dissertation</i> , Stanford University, June 1994.

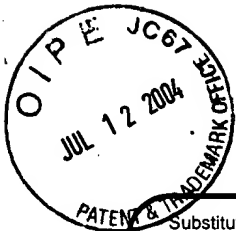
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PTO/SB/08A (10-01)

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **1** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
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Attorney Docket Number	IMMR020/03US

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		6,111,577	8/2000	Zilles et al.	
		6,104,158	8/2000	Jacobus et al.	
		6,088,019	7/2000	Rosenberg	
		6,088,017	7/2000	Trembley et al.	
		6,078,308	6/2000	Rosenberg et al.	
		6,061,004	5/2000	Rosenberg	
		6,057,828	5/2000	Rosenberg et al.	
		6,028,593	2/2000	Rosenberg et al.	
		6,020,876	2/2000	Rosenberg et al.	
		6,004,134	12/1999	Marcus et al.	
		5,990,869	11/1999	Kubica et al.	
		5,956,484	9/1999	Rosenberg et al.	
		5,889,670	3/1999	Schuler et al.	
		5,877,748	3/1999	Redlich	
		5,844,392	12/1998	Peurach et al.	
		5,831,408	11/1998	Jacobus et al.	
		5,825,308	10/1998	Rosenberg	
		5,818,423	10/1998	Pugliese et al.	
		5,808,601	9/1998	Leah et al.	
		5,805,601	9/1998	Leah et al.	
		5,805,165	9/1998	Thome, III et al.	
		5,805,140	9/1998	Rosenberg et al.	
		5,802,353	9/1998	Avila et al.	
		5,790,108	8/1998	Salcudean et al.	
		5,786,818	7/1998	Brewer et al.	
		5,784,052	7/1998	Keyson	
		5,781,172	7/1998	Engel et al.	
		5,771,037	6/1998	Jackson	
		5,769,640	6/1998	Jacobus et al.	
		5,767,839	6/1998	Rosenberg	
		5,760,764	6/1998	Martinelli	
		5,757,358	5/1998	Osga	
		5,755,577	5/1998	Gillio	
		5,754,023	5/1998	Roston et al.	
		5,745,715	4/1998	Pickover et al.	
		5,742,278	4/1998	Chen et al.	

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Sheet **2** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
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Attorney Docket Number	IMMR020/03US

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		5,739,811	4/1998	Rosenberg et al.	
		5,736,978	4/1998	Hasser et al.	
		5,734,373	3/1998	Rosenberg et al.	
		5,731,804	3/1998	Rosenberg	
		5,721,566	2/1998	Rosenberg et al.	
		5,714,978	2/1998	Yamanaka et al.	
		5,709,219	1/1998	Chen et al.	
		5,694,013	12/1997	Stewart et al.	
		5,691,898	11/1997	Rosenberg et al.	
		5,691,747	11/1997	Amano	
		5,666,473	9/1997	Wallace	
		5,666,138	9/1997	Culver	
		5,643,087	7/1997	Marcus et al.	
		5,642,469	6/1997	Hannaford et al.	
		5,631,861	5/1997	Kramer	
		5,629,594	5/1997	Jacobus et al.	
		5,625,576	4/1997	Massie et al.	
		5,623,642	4/1997	Katz et al.	
		5,623,582	4/1997	Rosenberg	
		5,619,180	4/1997	Massimino et al.	
		5,596,347	1/1997	Robertson et al.	
		5,591,924	1/1997	Hilton	
		5,589,854	12/1996	Tsai	
		5,587,937	12/1996	Massie et al.	
		5,586,257	12/1996	Perlman	
		5,583,478	12/1996	Renzi	
		5,577,981	11/1996	Jarvik	
		5,576,727	11/1996	Rosenberg et al.	
		5,572,639	11/1996	Grant	
		5,570,111	10/1996	Barrette et al.	
		5,565,888	10/1996	Selker	
		5,565,887	10/1996	McCambridge et al.	
		5,565,840	10/1996	Thomer et al.	
		5,551,701	9/1996	Bouton et al.	
		5,550,562	8/1996	Aoki et al.	
		5,530,455	6/1996	Gillick et al.	

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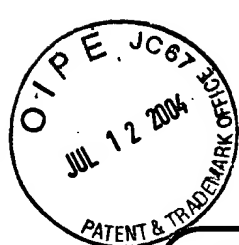
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Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,526,480	6/1996	Gibson	
		5,513,100	4/1996	Parker et al.	
		5,512,919	4/1996	Araki	
		5,482,051	1/1996	Reddy et al.	
		5,473,235	12/1995	Lance et al.	
		5,471,571	11/1995	Smith et al.	
		5,467,763	11/1995	McMahon et al.	
		5,459,382	10/1995	Jacobus et al.	
		5,451,924	9/1995	Massimino et al.	
		5,445,166	8/1995	Taylor	
		5,436,640	7/1995	Reeves	
		5,436,638	7/1995	Bolas et al.	
		5,436,542	7/1995	Petelin et al.	
		5,435,554	7/1995	Lipson	
		5,429,140	7/1995	Burdea et al.	
		5,428,748	6/1995	Davidson et al.	
		5,417,696	5/1995	Kashuba et al.	
		5,414,337	5/1995	Schuler	
		5,412,880	5/1995	Raab	
		5,402,582	4/1995	Raab	
		5,399,091	3/1995	Mitsumoto	
		5,398,044	3/1995	Hill	
		5,397,323	3/1995	Taylor et al.	
		5,396,267	3/1995	Bouton	
		5,389,865	2/1995	Jacobus et al.	
		5,386,507	1/1995	Teig et al.	
		5,384,460	1/1995	Tseng	
		5,379,663	1/1995	Hara	
		5,374,942	12/1994	Gilligan et al.	
		5,355,148	10/1994	Anderson	
		5,354,162	10/1994	Burdea et al.	
		5,351,692	10/1994	Dow et al.	
		5,313,230	5/1994	Venolia et al.	
		5,298,890	3/1994	Kanamaru et al.	
		5,296,871	3/1994	Paley	
		5,296,846	3/1994	Ledley	

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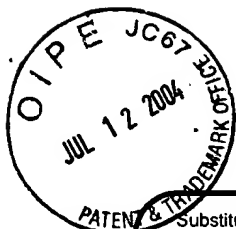
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

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Sheet **4** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS					
Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,289,273	2/1994	Lang	
		5,286,203	2/1994	Fuller et al.	
		5,275,565	1/1994	Moncrief	
		5,264,768	11/1993	Gregory et al.	
		5,262,777	11/1993	Low et al.	
		5,259,894	11/1993	Sampson	
		5,259,120	11/1993	Chapman et al.	
		5,251,156	10/1993	Heier et al.	
		5,251,127	10/1993	Raab	
		5,243,266	9/1993	Kasagami et al.	
		5,235,868	8/1993	Culver	
		5,230,623	7/1993	Guthrie et al.	
		5,228,356	7/1993	Chuang	
		5,223,776	6/1993	Radke et al.	
		5,220,260	6/1993	Schuler	
		5,209,131	5/1993	Baxter	
		5,204,824	4/1993	Fujimaki	
		5,195,179	3/1993	Tokunaga	
		5,193,963	3/1993	McAfee et al.	
		5,189,806	3/1993	McMurtry et al.	
		5,187,874	2/1993	Takahashi et al.	
		5,185,561	2/1993	Good et al.	
		5,184,319	2/1993	Kramer	
		5,184,306	2/1993	Erdman et al.	
		5,182,557	1/1993	Lang	
		5,181,181	1/1993	Glynn	
		5,178,012	1/1993	Culp	
		5,148,377	9/1992	McDonald	
		5,146,566	9/1992	Hollis, Jr. et al.	
		5,143,505	9/1992	Burdea et al.	
		5,142,931	9/1992	Menahem	
		5,142,506	8/1992	Edwards	
		5,139,261	8/1992	Openiano	
		5,132,672	7/1992	Clark	
		5,131,844	7/1992	Marinaccio et al.	
		5,128,671	7/1992	Thomas, Jr.	

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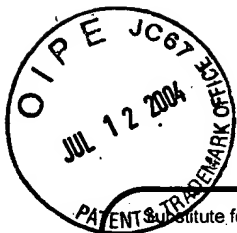
² Applicant's unique citation designation number (optional). ³ Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. ⁴ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁵ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁶ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁷ Applicant is to place a check mark here if English language Translation is attached.

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Sheet **5** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		5,126,948	6/1992	Mitchell et al.	
		5,116,051	5/1992	Moncrief et al.	
		5,107,262	4/1992	Cadoz et al.	
		5,107,080	4/1992	Rosen	
		5,103,404	4/1992	McIntosh	
		5,095,303	3/1992	Clark et al.	
		5,088,055	2/1992	Oyama	
		5,088,046	2/1992	McMurtry et al.	
		5,080,377	1/1992	Stamper et al.	
		5,072,361	12/1991	Davis et al.	
		5,065,145	11/1991	Purcell	
		5,050,608	9/1991	Watanabe et al.	
		5,044,956	9/1991	Behensky et al.	
		5,040,306	8/1991	McMurtry et al.	
		5,007,300	4/1991	Siva	
		5,007,085	4/1991	Greanias et al.	
		4,983,786	1/1991	Stevens et al.	
		4,982,618	1/1991	Culver	
		4,982,504	1/1991	Söderberg et al.	
		4,962,591	10/1990	Zeller et al.	
		4,961,267	10/1990	Herzog	
		4,961,138	10/1990	Gorniak	
		4,945,501	7/1990	Bell et al.	
		4,945,305	7/1990	Blood	
		4,942,545	7/1990	Sapia	
		4,935,728	6/1990	Kley	
		4,907,973	3/1990	Hon	
		4,907,970	3/1990	Meenen, Jr.	
		4,891,889	1/1990	Tomelleri	
		4,888,877	12/1989	Enderle et al.	
		4,879,556	11/1989	Duimel	
		4,868,549	9/1989	Affinito et al.	
		4,849,692	7/1989	Blood	
		4,839,838	6/1989	LaBiche et al.	
		4,823,634	4,1989	Culver	
		4,819,195	4/1989	Bell et al.	

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**INFORMATION DISCLOSURE
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Sheet **6** of **14****Complete if Known**Application Number **09/934,739**Filing Date **August 22, 2001**First Named Inventor **Louis B. Rosenberg**Art Unit **2675**Examiner Name **Paul A. Bell**Attorney Docket Number **IMMR020/03US****U.S. PATENT DOCUMENTS**

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		4,811,608	3/1989	Hilton	
		4,803,413	2/1989	Kendig et al.	
		4,800,721	1/1989	Cemenska et al.	
		4,798,919	1/1989	Miessler et al.	
		4,791,934	12/1988	Brunnett	
		4,787,051	11/1988	Olson	
		4,782,327	11/1988	Kley et al.	
		4,769,763	9/1988	Trieb et al.	
		4,750,487	6/1988	Zanetti	
		4,734,685	3/1988	Watanabe	
		4,724,715	2/1988	Culver	
		4,704,909	11/1987	Grahn et al.	
		4,703,443	10/1987	Moriyasu	
		4,692,756	9/1987	Clark	
		4,689,449	8/1987	Rosen	
		4,688,983	8/1987	Lindbom	
		4,679,331	7/1987	Koontz	
		4,676,002	6/1987	Slocum	
		4,654,648	3/1987	Herrington et al.	
		4,653,011	3/1987	Iwano	
		4,638,798	1/1987	Sheldon et al.	
		4,632,341	12/1986	Repperger et al.	
		4,601,206	7/1986	Watson	
		4,593,470	6/1986	Davies	
		4,571,834	2/1986	Fraser et al.	
		4,550,617	11/1985	Fraignier et al.	
		4,550,221	10/1985	Mabuth	
		4,477,973	10/1984	Davies	
		4,477,043	10/1984	Repperger	
		4,448,083	5/1984	Hayashi	
		4,436,188	3/1984	Jones	
		4,398,889	8/1983	Lam et al.	
		4,216,467	8/1980	Colston	
		4,148,014	4/1979	Burson	
		4,125,800	11/1978	Jones	
		4,114,882	9/1978	Mau	

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Sheet **7** of **14****Complete if Known**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

U.S. PATENT DOCUMENTS

Examiner	Cite No. ¹	Document Number Number Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		3,944,798	3/1976	Eaton	
		3,919,691	11/1975	Noll	
		3,890,958	6/1975	Fister et al.	
		3,875,488	4/1975	Crocker et al.	
		3,795,150	3/1974	Eckhardt	
		3,531,868	10/1970	Stevenson	
		3,490,059	1/1970	Paulsen et al.	
		2,906,179	9/1959	Bower	

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		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		WO	9720305		6/1997		
		WO	9719440		5/1997		
		WO	9712357		4/1997		
		WO	9712337		4/1997		
		WO	9642078		12/1996		
		WO	9628777		9/1996		
		WO	9622591		7/1996		
		WO	9616397		5/1996		
		WO	9532459		11/1995		
		WO	9520788		8/1995		
		WO	9520787		8/1995		
		WO	9510080		4/1995		
		WO	9502801		1/1995		
		WO	9502233		of 0000		
		WO	9200559		1/1992		
		JP	4-34610		2/1992		
		GB	2254911	A	10/1992		
		EP	0626634	A2	11/1994		
		EP	0085518	A1	8/1983		
		EP	0265011	A1	4/1998		

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STATEMENT BY APPLICANT**

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Sheet **8** of **14**

Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		EP	0607580	A1	7/1994		

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Sheet 9 of 14

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Application Number	09/934,739
Filing Date	August 22, 2001
First Named Inventor	Louis B. Rosenberg
Art Unit	2675
Examiner Name	Paul A. Bell
Attorney Docket Number	IMMR020/03US

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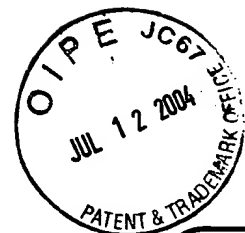
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		"Foot-Operated Mouse," IBM Technical Disclosure Bulletin, Apr. 1986, vol. 28, No. 11.
		"High Performance Model of the Immersion Probe," Immersion-Probe-MD.TM., Immersion Human Interface Corporation.
		"Proceedings of the IFIP Congress 65," International Federation for Information Processing, Information Processing 1965, vol. 3, New York, May 24-29, pp. 506.
		"The Personal Digitizer.TM.," Immersion Human Interface Corporation 1994.
		"Useful Technology for Your Idea File," Design News, Mar. 7 1994, pp. 63.
		3D Human Interface Tool, Immersion Probe.TM., Immersion Human Interface Corporation 1994.
		ADACHI, Yoshitaka et al., "Sensory Evaluation of Virtual Haptic Push-Buttons," Technical Research Center, Suzuki Motor Corporation, Nov. 1994.
		ADELSTEIN BERNARD D. et al., "A High Performance Two Degree-of-Freedom Kinesthetic Interface," Massachusetts Institute of Technology 1992, pp. 108-112.
		AKAMATSU et al., "Multimodal Mouse: A Mouse-Type Device with Tactile and Force Display", Presence, vol. 3, No. 1, Winter 1994, pp. 73-80.
		ATKINSTON, William D. et al., "Computing with Feeling," Comput. & Graphics, vol. 2, No. 2-E, pp. 97-103.
		Batter, James J. et al., "Grove-1: A Computer Display to the Sense of Feel," pp. TA-4-188-TA-4-192.
		BEJCZY, Antal K., "The Phantom Robot: Predictive Displays for Teleoperation with Time Delay," IEEE 1990, pp. 546-550.
		BROOKS et al., "Project Grove—Haptic Displays for Scientific Visualization," Computer Graphics, vol. 24, No. 4, 1990, pp. 177-185.
		BURDEA, Grigore et al., "A Portable Dextrous Master with Force Feedback," Presence: Teleoperators and Virtual Environments, MIT Press, Jun. 1991.
		BURDEA, Grigore et al., "Dextrous Telerobotics with Force Feedback-An Overview," Robotica 1991, vol. 9.

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		Application Number	09/934,739
		Filing Date	August 22, 2001
		First Named Inventor	Louis B. Rosenberg
		Art Unit	2675
		Examiner Name	Paul A. Bell
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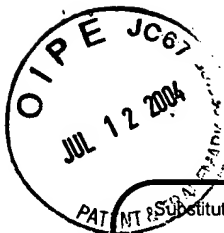
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		BURDEA, Grigore et al., "Distributed Virtual Force Feedback," IEEE, May 2, 1993, pp. 25-44.	
		BUTTOLO, Pietro et al., "Pen-Based Force Display for Precision Manipulation in Virtual Environments," IEEE Mar. 1995, pp. 1-8.	
		COLGATE J. Edward et al., Implementation of Stiff Virtual Walls in Force-Reflecting Interfaces, Sep. 22, 1993.	
		ELLIS, R.E. et al., "Design and Evaluation of a High-Performance Prototype Planar Haptic Interface," ASME Dec. 3, 1993, DSC-vol. 49, pp. 55-64.	
		FISCHER, Patrick et al., "Specification and Design of Input Devices for Teleoperation," 1990.	
		FISHER, S.S. et al., "Virtual Environment Display System," ACM Interactive 3D Graphics, Oct. 1986.	
		GOTOW, J.K., et al., "Perception of Mechanical Properties at the Man-Machine Interface," IEEE 1987, pp. 688-689.	
		HANNAFORD, B. et al., "Force Feedback Cursor Control," NASA Tech Brief, vol. 13, No. 11, Item #21, 1989, pp. 1-4.	
		HANNAFORD, Blake et al., "Performance Evaluation of a Six-Axis Generalized Force-Reflecting Teleoperator," IEEE May/Jun. 1991, vol. 21, No. 3, pp. 620-633. (14 pages) Cited by 62 patents [ISI abstract]	
		HASSER, Christopher John, "Tactile Feedback for a Force-Reflecting Haptic Display," The School of Engineering, University of Dayton, Dec. 1995, pp. iii-xii & 1-96.	
		HERNDON, J.N. et al., "The State-of-the-Art Model M-2 Maintenance System," Proc. of the 1984 Natl Meeting on Robotics and Remote Handling in Hostile Environments, American Nuclear Society, 1984, pp. 59-65.	
		HIROTA, K., et al., "Development of Surface Display," IEEE 0-7803-1363-1, 1993, pp. 256-262.	
		HOWE, Robert D., "Task Performance with a Dextrous Teleoperated Hand System," Proceedings of SPIE, Nov. 1992, vol. 1833, pp. 1-9.*	
		IWATA, Hiroo et al, Volume Haptization, IEEE 1993, pp. 16-18.	
		JACOBSEN, S.C. et al., "High Performance, High Dexterity, Force Reflective Teleoperator II," ANS Topical Meeting on Robotics & Remote Systems, Albuquerque, New Mexico Feb. 24-27, 1991, pp. 1-10.	

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		Application Number	09/934,739		
		Filing Date	August 22, 2001		
		First Named Inventor	Louis B. Rosenberg		
		Art Unit	2675		
		Examiner Name	Paul A. Bell		
Sheet	11	of	14	Attorney Docket Number	IMMR020/03US

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		KELLEY, A. J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Eng., Univ. of Brit. Columbia, 1993, pp. 1-27.	
		KELLEY, A.J. et al., "On the Development of a Force-Feedback Mouse and Its Integration into a Graphical User Interface," Symp. on Haptic Interfaces for Virtual Environment and Teleoperator Systems, 1994 Int'l Mechanical Engineering Congress and Exhibition, 1994, pp. 1-8.	
		KILPATRICK, P., "The use of a Kinesthetic Supplement in an Interactive Graphics System," University of North Carolina, 1976, pp. 1-175.	
		Kim, Won S. et al., "Graphics Displays for Operator Aid in Telemanipulation," IEEE 1991, pp. 1059-1067.	
		KIM, Won S. et al., A Teleoperation Training Simulator with Visual and Kinesthetic Force Virtual Reality.	
		KOTOKU, Tetsuo et al., "Environment Modeling for the Interactive Display (EMID) Used in Telerobotic Systems," IEEE Nov. 3-5, 1991, pp. 99-1004.	
		KOTOKU, Tetsuo, "A Predictive Display with Force Feedback and its Application to Remote Manipulation System with Transmission Time Display," IEEE 1992, pp. 239-246.	
		KRISHNA Roy, "Virtual Presence Takes Surgeons through the Virtual Keyhole to Hone Their Skills", Business & Industry, Jul. 4, 1995.	
		Meyer, Kenneth et al., "A Survey of Position Trackers," The Massachusetts Institute of Technology 1992, Presence, vol. 1, No. 2.	
		MILLMAN, P. et al., "Design of a Four Degree-of-Freedom Force-Reflecting Manipulandum with a Specified Force/Torque Workspace," IEEE CH2969-4, 1991, pp. 1488-1492.	
		MING OUH-YOUNG et al., "Creating an Illusion of Feel: Control Issues in Force Display," University of North Carolina, 1989, pp. 1-14.	
		MINSKY, Margaret et al., "Feeling and Seeing: Issues in Force Display," ACM 1990, pp. 235-242.	
		MUNCH, S. et al., "Intelligent Control for Haptic Displays," Eurographics '96, vol. 15, No. 3, Eurographics Association, 1996, pp. C217-C226. (10 pages) Cited by 21 patents [ISI abstract]	
		NOLL, A. Michael, "Man-Machine Tactile Communication Dissertation," Polytechnic Institute of Brooklyn, Jun. 1971, pp. 1-88.	
		OUH-YOUNG, M. et al., "Creating an Illusion of Feel: Control Issues in Force Display," Computer Science Dept., Univ. of N. Carolina, 1989, pp. 1-14.	

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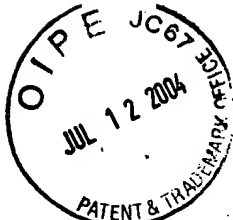
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		OUH-YOUNG, Ming et al., "Force Display Performs Better than Visual Display in a Simple 6-D Docking Task," IEEE 1989, pp. 1462-1466.
		OUH-YOUNG, Ming et al., "Using a Manipulator for Force Display in Molecular Docking," IEEE 1988, pp. 1824-1829.
		OUH-YOUNG, Ming, "Force Display in Molecular Docking," Chapel Hill 1990, pp. 1-85.
		PAYETTE, J. et al., "Evaluation of a Force Feedback (Haptic) Computer Pointing Device in Zero Gravity," DSC-vol. 58, Proc. of ASME Dynamics Systems, ASME 1996, pp. 547-553.
		RAMSTEIN et al., "The Pantograph: A large Workspace Haptic Device for a Multimodal Human-Computer Interaction," Computer-Human Interaction, CHI '94, 1994, pp. 1-3.
		RAMSTEIN, C., "Combining Haptic and Braille Technologies: Design Issues and Pilot Study," Assets '96, ACM 0-89791-776-6, 1996, pp. 37-44.
		REPPERGER, D.W., "Active Force Reflection Deices in Teleoperation," IEEE Control Systems.
		ROSENBERG et al., "Commercially Viable Force Feedback Controller for Individuals with Neuromotor Disabilities," Crew Systems Directorate, AL/CF-TR-1997-0016, 1996, pp. 1-33.
		ROSENBERG et al., "The use of force feedback to enhance graphical user interfaces," Stereoscopic Displays and Virtual Reality Systems III, 1996, pp. 243-248.
		ROSENBERG, L., "Virtual Fixtures: Perceptual Overlays Enhance Operator Performance in Telepresence Tasks", Stanford University, Jun. 1994, pp. 1-214.
		ROSENBERG, Louis B. et al., "Perceptual Decomposition of Virtual Haptic Surfaces," IEEE, Oct. 1993.
		ROSENBERG, Louis B., "Perceptual Design of a Virtual Rigid Surface Contact," Center for Design Reseach Stanford University, Air Force Material Command, Apr. 1993, pp. 1-41.
		ROSENBERG, Louis B., "The Use of Virtual Fixtures as Perceptual Overlays to Enhance Operator Performance in Remote Environments," Air Force Material Command, Sep. 1992, pp. 1-42.
		ROSENBERG, Louis B., "Virtual Fixtures as Tools to Enhance Operator Performance in Telepresence Environments," SPIE Telemanipulator Technology, 1993.
		ROSENBERG, Louis B., "Virtual Haptic Overlays Enhance Performance in Telepresence Tasks," SPIE 1994.

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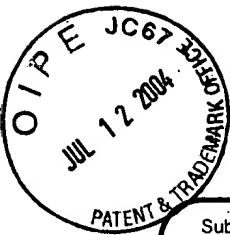
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		ROSENBERG, Louis B., Crew Systems Directorate Biodynamics and Biocommunications Division Wright-Patterson, Air Force Material Command, Mar. 1993, pp. 1-45.
		ROSENBERG, Louis B., The Use of Virtual Fixtures to Enhance Operator Performance in Time Delayed Teleoperation, Armstrong Laboratory, Mar. 1993, pp. 1-45.
		ROSENBERG, Louis, Ph.D., "Using Force Feedback to Enhance Human performance in Graphical User Interfaces," apr. 1996.
		SCHMILT, Brian et al., "Application Areas for a Force-Feedback Joystick," ASME 1993, DSC-vol. 49, pp. 47-54.
		SMITH, Geoffrey, "Call It Palpable Progress," Business Week, Oct. 9, 1995, p. 93, 96.
		SNOW, E. et al., "Compact Force-Reflecting Hand Controller," JPL, Apr. 1991, vol. 15, No. 3, Item No. 153, pp. 1-15a.
		SU, S. Augustine et al., "The Virtual Panel Architecture: A 3D Gesture Framework," IEEE 1993, pp. 387-393.
		TAN, Hong Z et al., "Manual Resolution of Compliance When Work and Force Cues are Minimized," ASME 1993, DSC-vol. 49, pp. 99-104.
		TAN, HONG Z. et al., "Human Factors for the Design of Force-Reflecting Haptic Interfaces," TAN, SRINIVASAN, EBERMAN, & CHANG, ASME WAM 1994, pp. 1-11.
		TAVKHELIDZE, D.S. "Kinematic Analysis of Five-Link Spherical Mechanisms," Mechanism and Machine Theory 1974, vol. 9, pp. 181-190.
		WIKER, S. et al., "Development of Tactile Mice for Blind Access to Computers: Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," Proc. of the Human Factors Society 35th Annual Meeting 1991, pp. 708-712.
		WINEY III, C., "Computer Simulated Visual and Tactile Feedback as an Aid to Manipulator and Vehicle Control," MIT 1981, pp. 1-79.
		YAMAKITA, M. et al., Tele-Virtual Reality of Dynamic Mechanical Model, IEEE Jul. 7-10, 1992, pp. 1103-1110.
		YOKOKOHJI et al., "What you can see is what you can feel-development of a visual/haptic interface to virtual environment," IEEE 0-8186-7295-1, 1996, pp. 46-54.
		ZILLES, C.B. et al., "A Constraint-based God-object Method for Haptic Display," IEEE 0-818607108-4, 1995, pp. 146-150.

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Art Unit	2675
Examiner Name	Paul A. Bell
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